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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,840	07/31/2003	Min Li	HTIRC02-011	1037

7590

12/15/2005

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EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/631,840

Applicant(s)

LI ET AL.

Examiner

William J. Klimowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 21-40 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicants' election with traverse of Group I (claims 1-20) in the reply filed on October 11, 2005 is acknowledged.

The traversal is on the ground(s) that the field of search would be similar and the cost of filing another application would be a burden upon the Applicants.

This is not found persuasive because the Examiner maintains that the scope of the differing statutory classes of invention render the potential for allowing Group I claims, while having art that would render Group II claims unallowable. Moreover, the claim scope of Group Group II and I are significantly dissimilar. Moreover still, the product claims of Group II do not require the particulars of the method of making the product (Group I claims), including, but not limited to the specifically claimed time interval for annealing the head in a magnetic field as being explicitly limited to between 300 and 600 minutes, at an explicit and specific temperature range of between 200 and 250 degrees centigrade (claim 1) or 250 and 300 degrees centigrade (claim 6) or 250 and 280 degrees centigrade (claim 11 and claim 16) and an explicitly and specific magnetic annealing field of between 10 and 15 kOe.

The requirement is still deemed proper and is therefore made FINAL.

Claims 21-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 11, 2005.

Reasons for Allowance

The following is an Examiner's statement of reasons for allowance:

The prior art of record fails to fairly, teach, show or suggest, by either anticipating or rendering obvious, the invention as set forth in the claims of the instant application.

Furthermore, a search made does not detect the combined claimed elements as set forth in the pending claims. Additionally, the reasons for allowance of the claims over the prior art of record is believed to be readily clear, self evident and apparent from the claim language set forth in each of claims 1, 6, 11 and 16, when compared and contrasted with the prior art.

More particularly, the instant invention (as set forth in independent claims 1, 6, 11 and 16) provides for a method of making a magnetoresistive sensor (TJM or spin valve), wherein the two antiferromagnetically coupled synthetic films are coupled by a layer of rhodium having a thickness of between about 5 to 7 Angstroms, wherein the two CoFe antiferromagnetically coupled layers have a thickness between 50 and 90 Angstroms, wherein the head is annealed in a magnetic field of between 10 and 15 kOe for 300 to 600 minutes, at a temperature of between 200 to 300 degrees centigrade.

The closet prior art includes Zheng et al (US 6,943,994 B2) who discloses a spin valve sensor including a rhodium layer as an APC coupling layer (e.g., see COL. 7, lines 27-40).

However, Zheng et al (US 6,943,994 B2) does not expressly disclose, teach or suggest, wherein the two ferromagnetic films being coupled by the rhodium layer have the claimed prescribed thickness range (between 50 and 90 Angstroms), wherein the head is annealed in a

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magnetic field of between 10 and 15 kOe for 300 to 600 minutes, at a temperature of between 200 to 300 degrees centigrade.

Thus, Zheng et al (US 6,943,994 B2) does not disclose the invention as set forth in the manner, function and relationship relative to other claimed structure as prescribed by the independent claims 1, 6, 11 and 16.

Additionally, Zheng et al (US 6,943,994 B2) does not provide, alone or in combination with the art of record or general knowledge within the art, any suggestion or teaching for the invention as set forth in the independent claims 1, 6, 11 and 16.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

This application is in condition for allowance except for the presence of claims 21-40 to an invention non-elected with traverse in the reply filed on October 11, 2005. Applicant is given ONE MONTH or THIRTY DAYS from the date of this letter, whichever is longer, to cancel the noted claims or take other appropriate action (37 CFR 1.144). Failure to take action during this period will be treated as authorization to cancel the noted claims by Examiner's Amendment and pass the case to issue. Extensions of time under 37 CFR 1.136(a) will not be permitted since this application will be passed to issue.

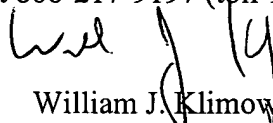
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The prosecution of this case is closed except for consideration of the above matter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William J. Klimowicz
Primary Examiner
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WJK